

FORM PTO-1390 (REV 1-98)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER  81839.0105	
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>				U.S. APPLICATION NUMBER (if known (see 37 C.F.R. 1.53)) <div style="font-size: 2em; font-weight: bold; text-align: center;">16/030867</div> Not assigned	
INTERNATIONAL APPLICATION NO.  PCT/JP01/01125		INTERNATIONAL FILING DATE  16 February 2001 (2.16.01)		PRIORITY DATE CLAIMED  22 February 2000 (2.22.00)	
TITLE OF INVENTION                      METHOD FOR GROWING SEMICONDUCTOR SINGLE CRYSTAL					
APPLICANT(S) FOR DO/EO/US        Masanori KIMURA					
<p>Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:</p> <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</li> <li>4. <input type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</li> <li>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))               <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input checked="" type="checkbox"/> has been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li>6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</li> <li>7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))               <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input type="checkbox"/> have been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li>d. <input type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</li> <li>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</li> </ol> <p><b>Items 11. to 16. below concern document(s) or information included:</b></p> <ol style="list-style-type: none"> <li>11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.</li> <li>12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.</li> <li>13. <input type="checkbox"/> A FIRST preliminary amendment.                  <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</li> <li>14. <input type="checkbox"/> A substitute specification.</li> <li>15. <input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li>16. <input checked="" type="checkbox"/> Other items or information:                  Associate Power of Attorney         </li> </ol>					

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.53) <b>10/7030867</b> Not assigned		INTERNATIONAL APPLICATION NUMBER PCT/JP01/01125		ATTORNEY'S DOCKET NUMBER 81839.0105	
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17. ☒ The following fees are submitted:

**BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5)):**

Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO of JPO ..... **\$1040**

International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... **\$890**

International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO ..... **\$740**

International preliminary examination fee (37 C.F.R. 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... **\$710**

International preliminary examination fee (37 C.F.R. 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... **\$100**

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

\$ 890.00	
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Surcharge of \$130 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 C.F.R. 1.492(c)).

\$ 0	
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CLAIMS	NUMBER FILED	NUMBER ALLOWED	NUMBER EXTRA	RATE		
Total claims	5	20	0	X \$18.00	0	
Independent claims	2	3	0	X \$84.00	0	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				X \$280.00	\$ 0	
<b>TOTAL OF ABOVE CALCULATIONS =</b>					890.00	

☐ Applicant claims small entity status. See 37 C.F.R. § 1.27. The fees indicated above are reduced by 1/2.

**SUBTOTAL =**

0	
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Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 C.F.R. 1.492(f)).

\$ 0	
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**TOTAL NATIONAL FEE =**

0	
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Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). \$40.00 per property +

\$ 40	
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**TOTAL FEES ENCLOSED =**

930.00	
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	Amt. Refunded \$
\$	Amt. charged

a. ☒ Checks in the amounts of \$890.00 and 40.00 to cover the above fees are enclosed.


b. ☐ Please charge my Deposit Account No. 50-1314 in the amount of 0 to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 50-1314. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO:

☒ Customer Number **000026021**



**26021**

PATENT TRADEMARK OFFICE

HOGAN & HARTSON L.L.P.  
 500 South Grand Avenue, Suite 1900  
 Los Angeles, California 90071  
 Phone: 213-337-6700  
 Fax: 213-337-6701

**SIGNATURE**  
 Lawrence J. McClure  
 REG. NO. 44,228  
 EL 894 944 207 US  
 October 18, 2001

Transmittal Letter to the United States Designated Office (DO/US)—Entry Into National Stage under 35 U.S.C. 371—PTO 1390 [13-7]

JC14 Rec'd PCT/PTO 18 OCT 2001

10/030867

PATENT  
Attorney Docket No: 81839.0105

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Masanori KIMURA

Serial No: Not assigned

Filed: October 18, 2001

For: METHOD FOR GROWING SEMICONDUCTOR SINGLE  
CRYSTAL

Art Unit: Not assigned

Examiner: Not assigned

CERTIFICATE OF MAILING VIA U.S. EXPRESS MAIL

"Express Mail" Mailing Label No. EL 894 944 207 US

Date of Deposit: October 18, 2001

Box PCT  
Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

I hereby certify that

- ☒ two copies of a letter of transmittal
- ☒ check in amount of \$ 890.00 as filing fee
- ☒ patent application ( 33 page(s) of specification; 5 claim(s); 1 page(s) of abstract
- ☒ 4 sheet(s) of formal drawings
- ☒ executed Declaration and Power of Attorney
- ☒ assignment of the invention to SHIN-ETSU HANDOTAI CO., LTD.
- ☒ associates power of attorney
- ☒ Information Disclosure Statement with 4 references
- ☒ return postcard

are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service with sufficient postage under 37 C.F.R. § 1.10 on the date indicated above and are addressed to:

Box PCT  
Commissioner for Patents  
Washington, D.C. 20231.

Date: October 18, 2001

Hogan & Hartson, LLP  
500 South Grand Avenue, Suite 1900  
Los Angeles, California 90071  
Telephone: 213-337-6700  
Facsimile: 213-337-6701

Emily Cruz

Name of person mailing papers

Signature



PATENT 81839.0105

#4

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Masanori KIMURA

Serial No: 10/030,867

Filed: October 18, 2001

For: METHOD FOR GROWING  
SEMICONDUCTOR SINGLE  
CRYSTAL

Art Unit: Not Assigned

Examiner: Not Assigned

I hereby certify that this correspondence  
is being deposited with the United States  
Postal Service with sufficient postage as  
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Commissioner for Patents  
Washington D.C. 20231, on

April 18, 2002

Date of Deposit

Anthony J. Orler, Reg. No. 41,232

Name

Signature

04/18/02

Date

**PRELIMINARY AMENDMENT**

U.S. Patent and Trademark Office  
P. O. Box 2327  
Arlington, VA 22202

Dear Sir:

Prior to examination of above-identified application, please amend the  
application as follows:

**IN THE CLAIMS:**

Rewrite claim 3 as follows:

3. (Amended) The method for growing a semiconductor single crystal  
according to Claim 1, wherein electric power values of the heater surrounding the  
crucible and the subsidiary heating means and/or a ratio of the both power values are  
obtained by calculation based on global heat transfer analysis, the obtained value(s)  
is/are used as a target value or values of control, and electric powers supplied to the  
heater and the subsidiary heating means are controlled to be as near the target value  
or values as possible during the pulling of the single crystal.

Please add the following new claim:

--5. The method for growing a semiconductor single crystal according to Claim 2, wherein electric power values of the heater surrounding the crucible and the subsidiary heating means and/or a ratio of the both power values are obtained by calculation based on global heat transfer analysis, the obtained value(s) is/are used as a target value or values of control, and electric powers supplied to the heater and the subsidiary heating means are controlled to be as near the target value or values as possible during the pulling of the single crystal. --

REMARKS

The application was filed with claims 1-4, of which claim 3 is a multiple dependent claim which depends from claim 1 or 2. Claim 3 is being amended so as to depend exclusively from claim 1, and new claim 5 is being presented in order to set forth claim 3 in a form which depends exclusively from claim 2, thereby eliminating the multiple dependency of claim 3. Marked up versions of the amended claim is attached hereto pursuant to 37 C.F.R. § 1.121(c)(ii).

Therefore, an action on the application as amended herein is respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 337-6742 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

HOGAN & HARTSON L.L.P.

Date: April 18, 2002

By: 

Anthony J. Orler  
Registration No. 41,232  
Attorney for Applicant(s)

Biltmore Tower  
500 South Grand Avenue, Suite 1900  
Los Angeles, CA 90071  
Telephone: (213) 337-6700  
Facsimile: (213) 337-6701

Version with markings to show changes made:

Rewrite claim 3 as follows:

3. (Amended) The method for growing a semiconductor single crystal according to Claim 1 [or 2], wherein electric power values of the heater surrounding the crucible and the subsidiary heating means and/or a ratio of the both power values are obtained by calculation based on global heat transfer analysis, the obtained value(s) is/are used as a target value or values of control, and electric powers supplied to the heater and the subsidiary heating means are controlled to be as near the target value or values as possible during the pulling of the single crystal.

Please add the following new claim:

--5. The method for growing a semiconductor single crystal according to Claim 2, wherein electric power values of the heater surrounding the crucible and the subsidiary heating means and/or a ratio of the both power values are obtained by calculation based on global heat transfer analysis, the obtained value(s) is/are used as a target value or values of control, and electric powers supplied to the heater and the subsidiary heating means are controlled to be as near the target value or values as possible during the pulling of the single crystal. --